DINOSAURS!

•DISCOVER THE GIANTS OF THE PREHISTORIC WORLD•

18

DINOSAURS!

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DINOSAURS!

• DISCOVER THE GIANTS OF THE PREHISTORIC WORLD •

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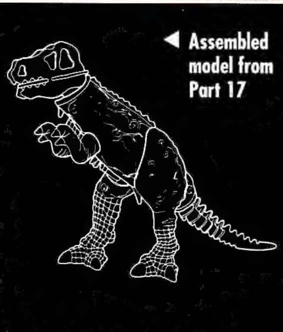
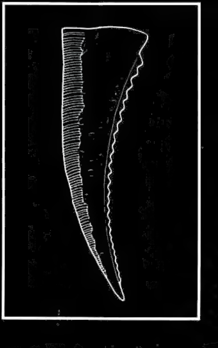
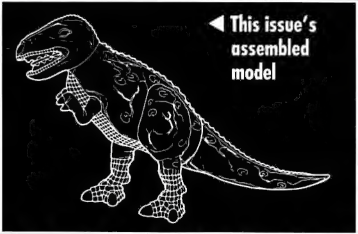


◀ Assembled model from Part 17



▶ This issue's model piece
Model part 16 –
left side of tail



◀ This issue's assembled model

▲ Your complete *T rex* model

Hold the left side of the tail so the jagged edge is pointing upwards. Attach the green half tail on to the dinosaur's skeleton tail.

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CENTROSAURUS

***Centrosaurus* was a sociable dinosaur. Living in great herds, it usually had plenty of company.**

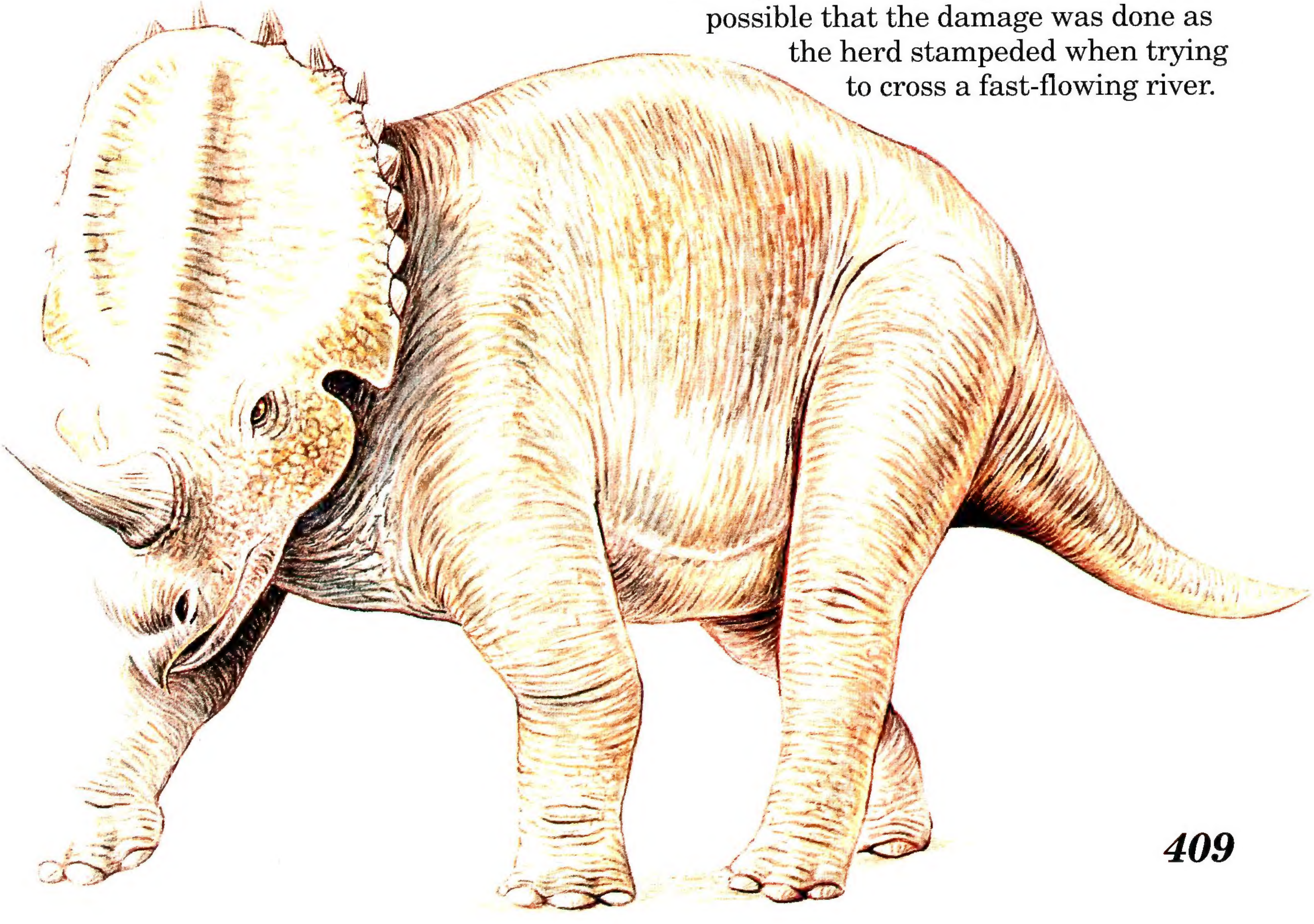
Hundreds of fossils of this horned dinosaur were found in the Red Deer Valley area of Alberta, Canada. Scientists were able to work out not only what *Centrosaurus* looked like, but how it lived. It was about as long as an elephant and as tall as an adult human. With a single horn on its snout and a chunky body, *Centrosaurus* looked like a big rhinoceros.

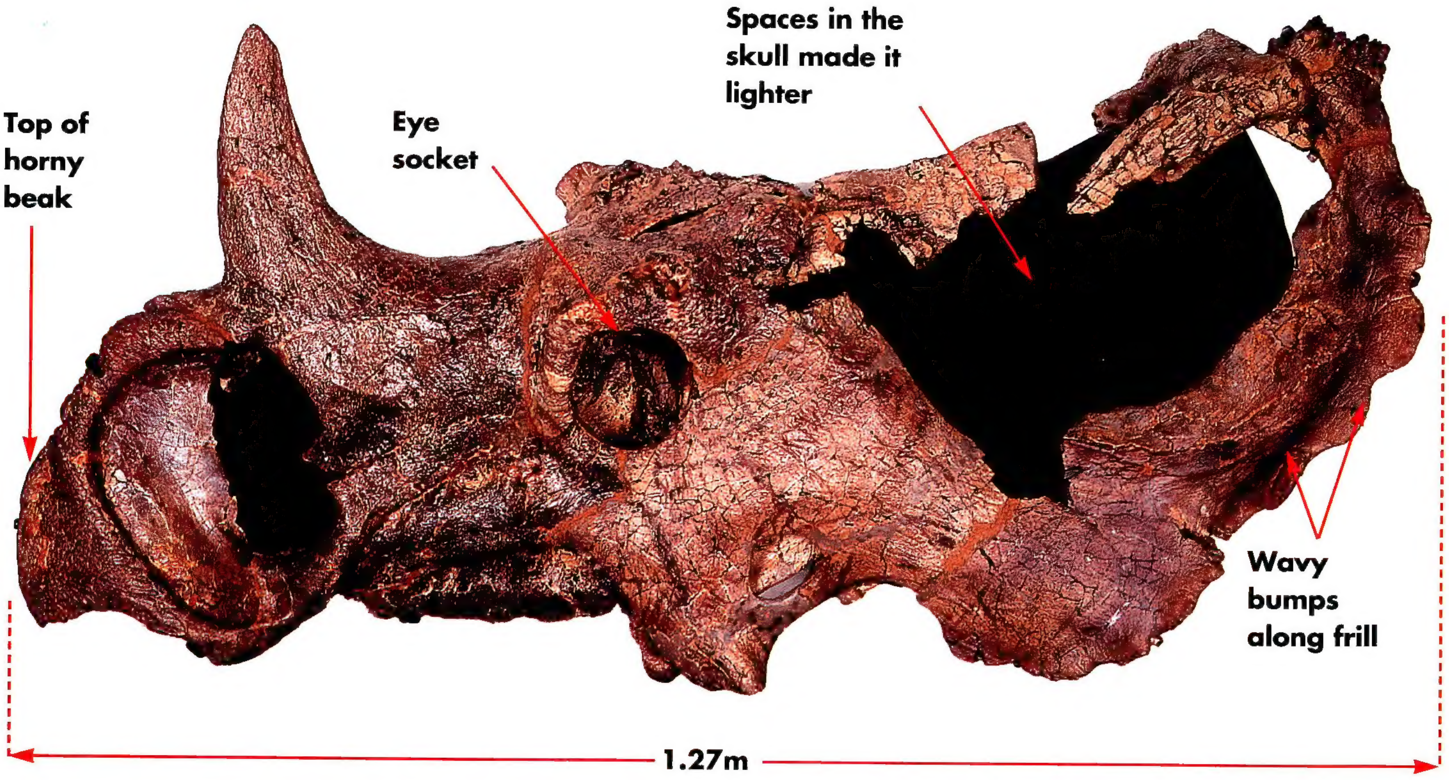
UNDER ATTACK

When attacked by giant tyrannosaurids (two-legged meat-eaters), a herd of *Centrosaurus* had a clever way of keeping safe. The males formed a ring around the young and female dinosaurs and faced outwards with their sharp horns at the ready. Just like a ring of wagons in the old Wild West, this circle of dinosaurs was difficult for the attackers to break through.

TRAMPLED BONES

The scientists who found the fossilized herd of *Centrosaurus* noticed that some of the bones were broken. The bones looked as if they had been trampled on. It is possible that the damage was done as the herd stampeded when trying to cross a fast-flowing river.

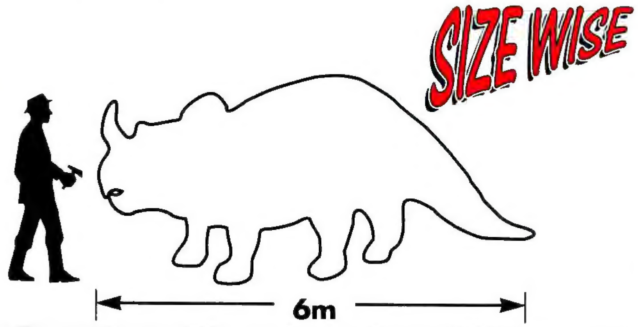




Centrosaurus' skull is so big that it could just fit on a two-seater sofa. The bumps along the frill may have just been for decoration.

MONSTER FACTS

- **NAME:** *Centrosaurus* (sen-troh-saw-rus) means 'sharp pointed reptile'
- **SIZE:** about 6m long and 1.8m high
- **FOOD:** low-growing plants
- **LIVED:** about 80 million years ago in the Late Cretaceous Period in Alberta, Canada



FIGHT NOT FLIGHT

Centrosaurus was not built for speed. With its heavy body and pillar-like legs, it had to stand its ground against predators. *Centrosaurus* did not always stay with its herd. When it went off alone to look for food, it became a tempting target for meat-eaters like *Albertosaurus*. But predators had to move fast. If *Centrosaurus* caught sight of its attacker, it crouched low, spreading its legs apart ready to charge like a rhinoceros. Imagine that sharp, pointed horn coming straight at you. Even the biggest dinosaur could be hurt – or killed – when speared by *Centrosaurus*.

HEAVY HEADED

Because its head and frill were so big compared with the rest of its body, *Centrosaurus* needed a very strong neck and shoulders. Even a small shake of the head put a lot of pressure on *Centrosaurus*' bones. Some of its neck bones were welded together for extra strength.

TIP TOES

Centrosaurus had broad feet with splayed toes. This provided a large surface so that its great weight was evenly spread. As it walked, *Centrosaurus* probably put its hoofed toes to the ground rather than its whole foot. Its front legs were very strong. Shorter than the hind legs, they bore much of the weight of the massive head and body.

SLICING THROUGH

Snipping off shoots with its beak, *Centrosaurus* browsed among low-lying plants. Its teeth had sharp edges that sliced through plants like a guillotine. New teeth grew as the old ones wore out.

A BIG FRILL

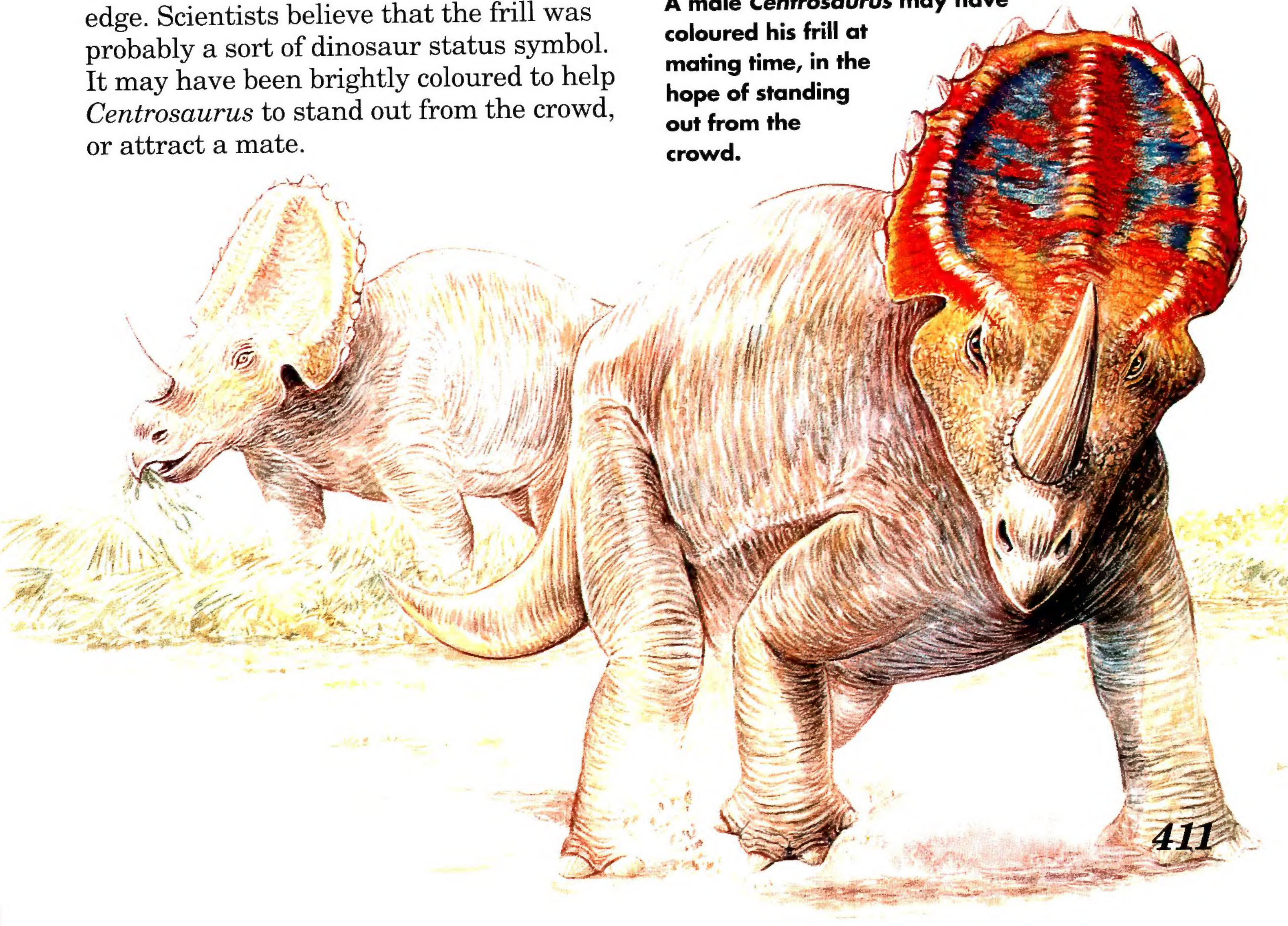
Attached to *Centrosaurus'* neck was a bony frill with little, wavy bumps along the edge. Scientists believe that the frill was probably a sort of dinosaur status symbol. It may have been brightly coloured to help *Centrosaurus* to stand out from the crowd, or attract a mate.

IT'S A FACT

FAMOUS SITE

About 500 dinosaur skeletons have been found in the Red Deer Valley in Canada. Known as the 'Badlands', this area is one of the most important dinosaur sites in the world. It contains fossils of hadrosaurs, ankylosaurs, *Albertosaurus* and a whole herd of horned *Centrosaurus*.

***Centrosaurus'* frill would have been almost useless for defence. It is far more likely that it was used to make an impression. A male *Centrosaurus* may have coloured his frill at mating time, in the hope of standing out from the crowd.**



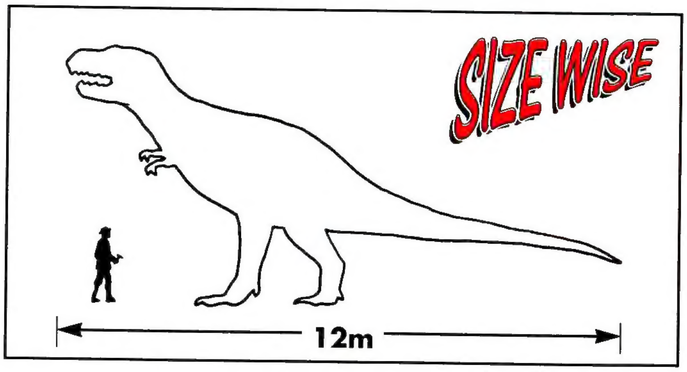
TARBOSAURUS

For its size, *Tarbosaurus* had the smallest arms of any predatory dinosaur. They were not even long enough to reach its mouth.

Some scientists think that *Tarbosaurus* is so like *Tyrannosaurus* that they must be the same animal. But *Tarbosaurus* was found in Mongolia – thousands of miles from Canada where *Tyrannosaurus* lived. *Tarbosaurus* also had a larger head and a lighter body than its Canadian relative.

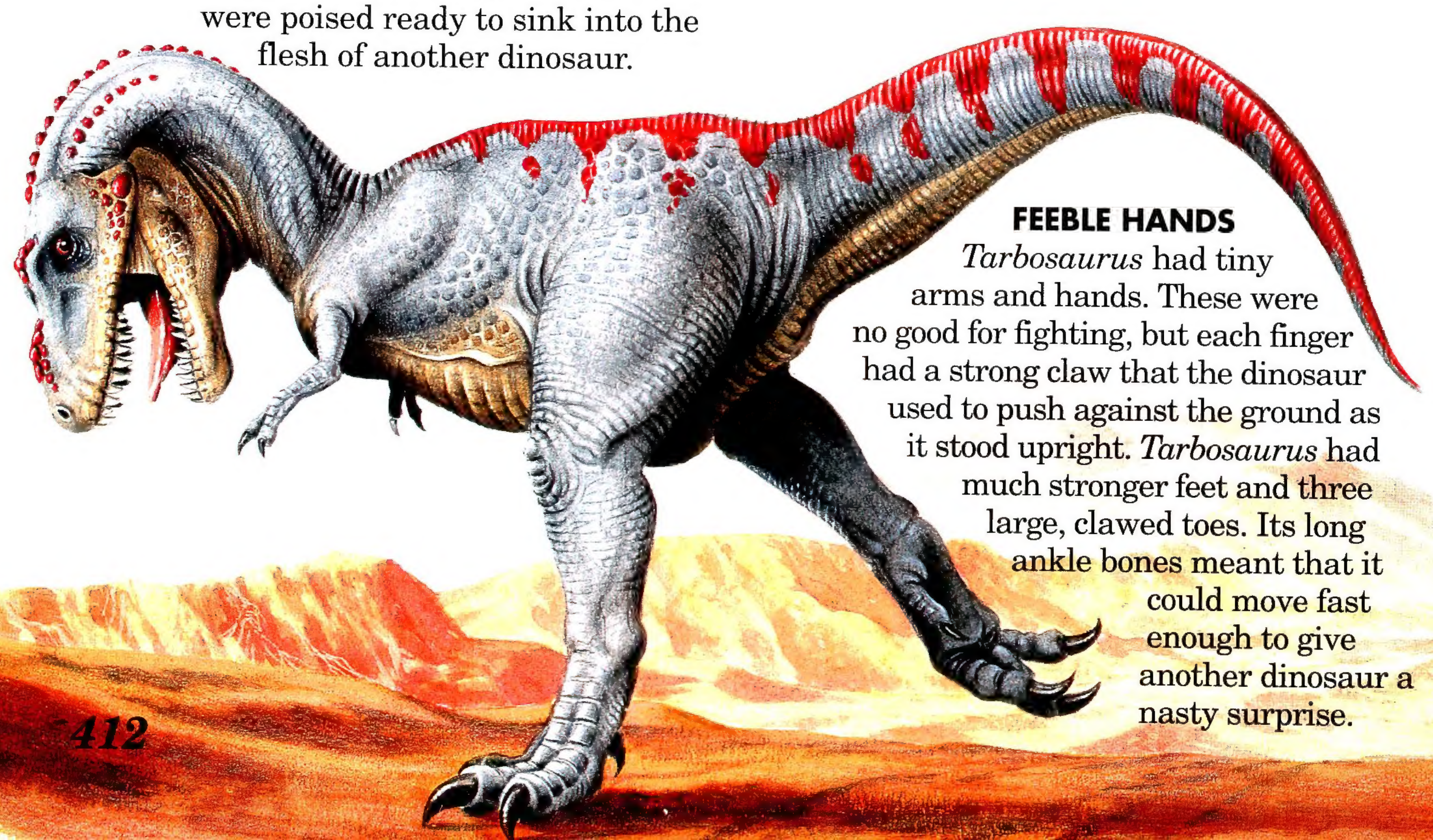
TERRIBLE TEETH

The sight of *Tarbosaurus* with its mouth gaping wide must have been terrifying – its skull alone was as long as a leopard! Its whole body was longer than three cars. Inside its upper jaw, 27 long, curved teeth were poised ready to sink into the flesh of another dinosaur.



MONSTER FACTS

- **NAME:** *Tarbosaurus* (tar-boh-saw-rus) means 'alarming dinosaur'
- **SIZE:** about 12m long
- **FOOD:** meat, especially other dinosaurs
- **LIVED:** about 70 million years ago in the Late Cretaceous Period in Mongolia



FEEBLE HANDS

Tarbosaurus had tiny arms and hands. These were no good for fighting, but each finger had a strong claw that the dinosaur used to push against the ground as it stood upright. *Tarbosaurus* had much stronger feet and three large, clawed toes. Its long ankle bones meant that it could move fast enough to give another dinosaur a nasty surprise.

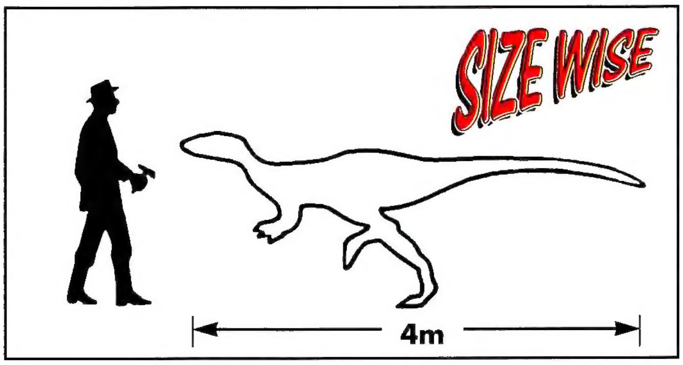
RHABDODON

Dainty *Rhabdodon* was as fleet-footed as a gazelle as it sprinted along on long, slender legs.

About as long as a family-sized car, *Rhabdodon* was bigger and heavier than its relative *Hypsilophodon*. Both these animals belong to a group nicknamed 'gazelle dinosaurs'. *Rhabdodon* moved with the same grace and strength as an agile gazelle. It was so speedy that it could outrun most predators.

WELL CHEWED

Rhabdodon did not have to be reminded to chew its food well! It had an efficient way of eating its favourite plants and shoots. First, it nipped off a branch with the sharp edge of its horny beak. Inside its strong jaws, *Rhabdodon* had rows of teeth that overlapped to form a keen cutting blade. Its fleshy cheeks pushed food back towards the blade to be chewed over and over again. Even the toughest plants were soon minced into a soft mush.

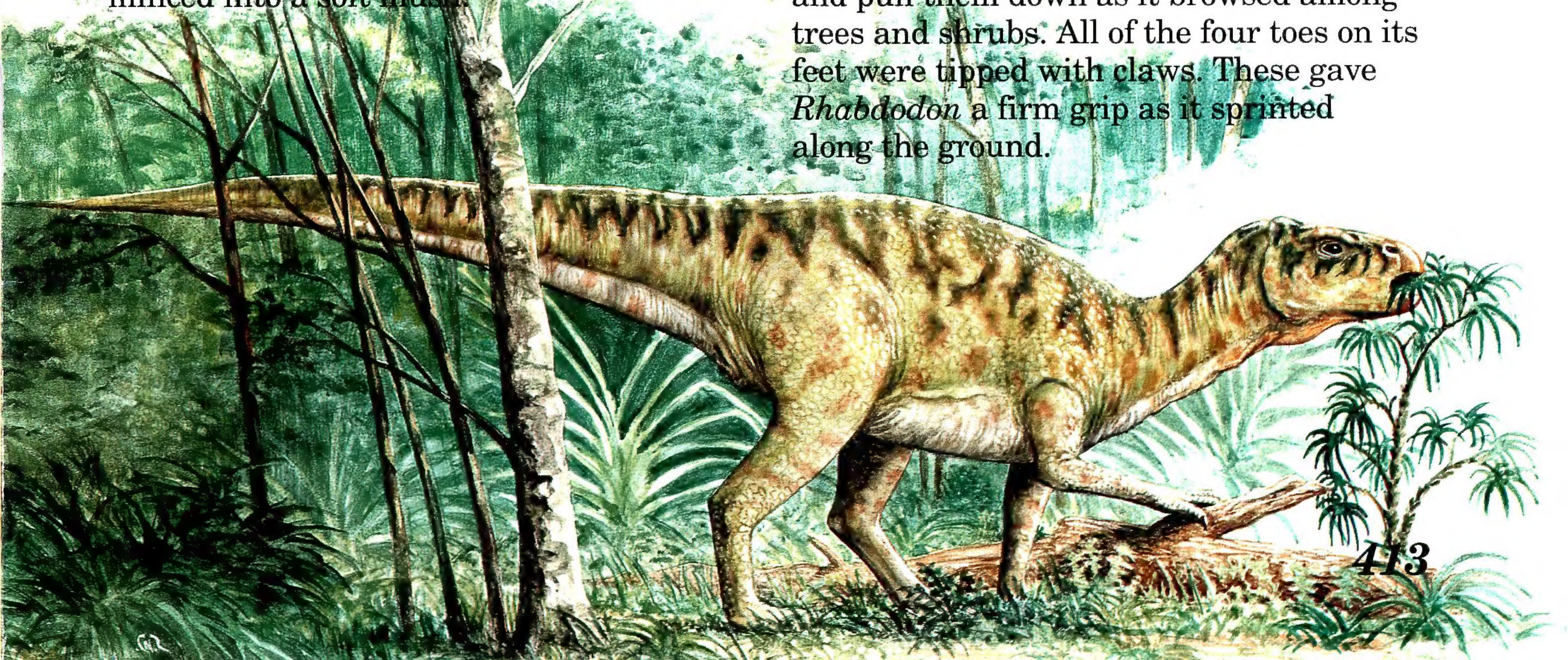


MONSTER FACTS

- **NAME:** *Rhabdodon* (rab-doh-don) means 'rod tooth'
- **SIZE:** about 4m long
- **FOOD:** leaves from plants, trees and shrubs
- **LIVED:** about 80 million years ago in the Late Cretaceous Period in France, Austria and Romania

FINGERS AND TOES

Rhabdodon probably had five fingers on each hand, which helped it grasp branches and pull them down as it browsed among trees and shrubs. All of the four toes on its feet were tipped with claws. These gave *Rhabdodon* a firm grip as it sprinted along the ground.



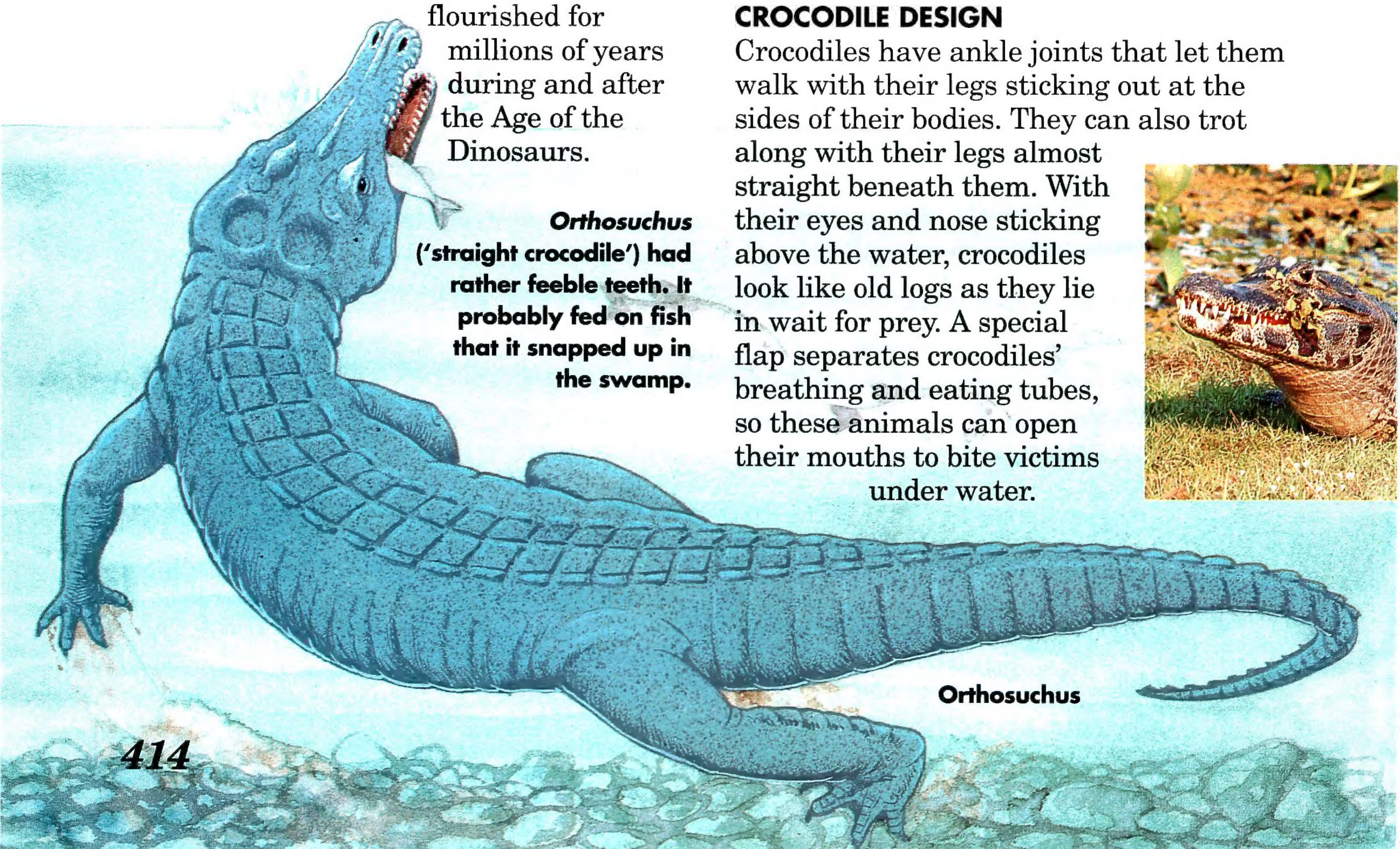
The great survivors

There are creatures stalking the Earth today whose ancestors hunted dinosaurs – they are the crocodiles.

There's something sinister about a crocodile. With its sprawling legs, slinky tail and rows of pointed teeth, it lurks in the timeless swamp, waiting to grab a victim. Crocodiles seem to be from another time, before people lived on Earth – in fact they are!

CROCODILE KINDS

There are 22 kinds of crocs alive today. They include the crocodiles themselves, alligators, caimans from Central and South America and gharials from India. Together they are known as crocodilians. They are survivors of a group that has flourished for millions of years during and after the Age of the Dinosaurs.



***Orthosuchus* ('straight crocodile') had rather feeble teeth. It probably fed on fish that it snapped up in the swamp.**

CROCODILE KIN

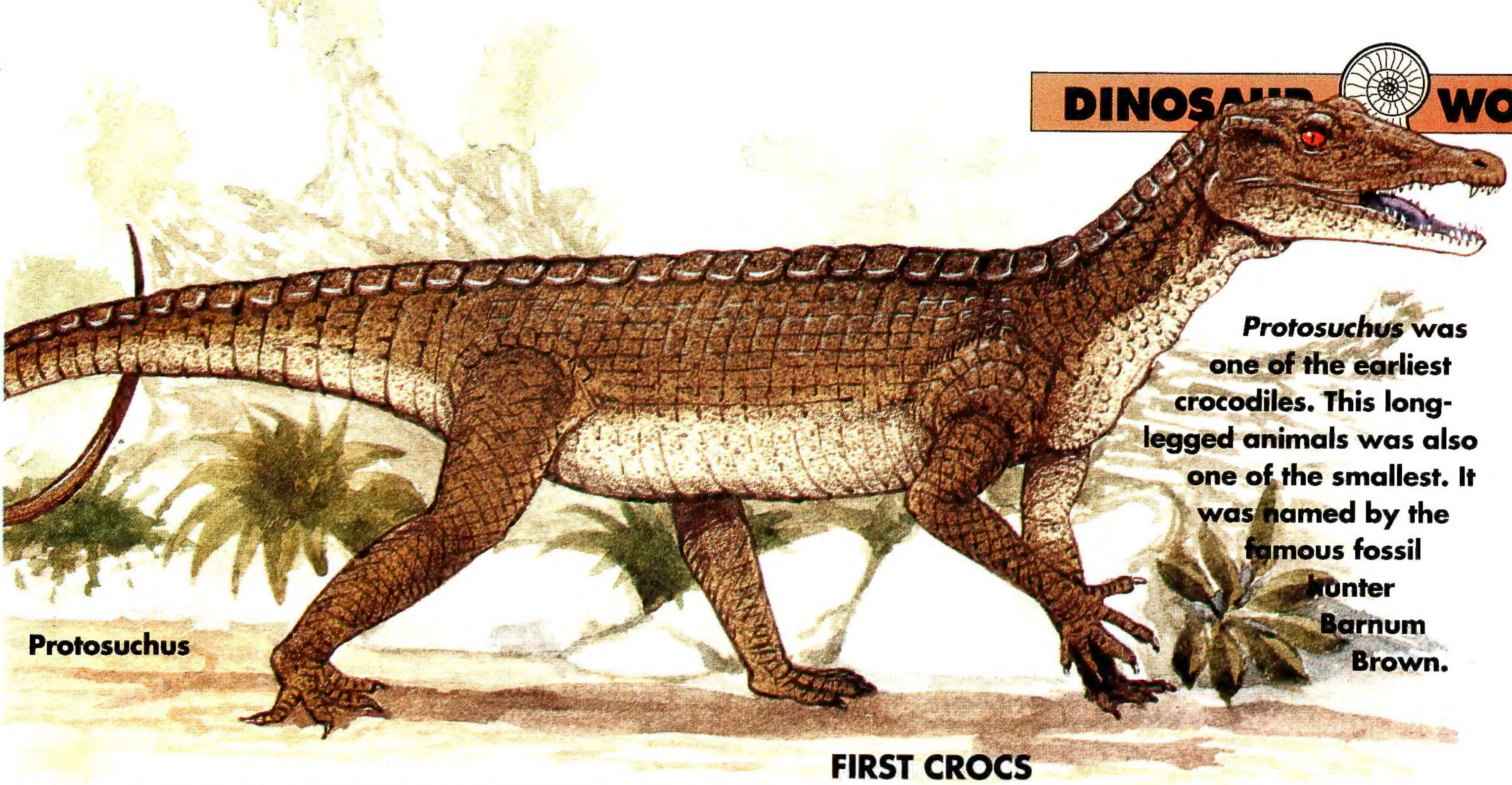
Where did crocodiles come from? About 250 million years ago, a new group of reptiles appeared – the 'ruling reptiles' (archosaurs). Three important groups of animals evolved from the early archosaurs: the pterosaurs in the air, the dinosaurs on land and the crocodiles in rivers and swamps. This means crocodilians are the closest living cousins of the dinosaurs.

WAY OF LIFE

In some terrible catastrophe at the end of the Cretaceous, dinosaurs and pterosaurs died out. The crocodiles were the only survivors and they have hardly changed for almost 200 million years. So we can look at them today and work out how the prehistoric crocodiles lived.

CROCODILE DESIGN

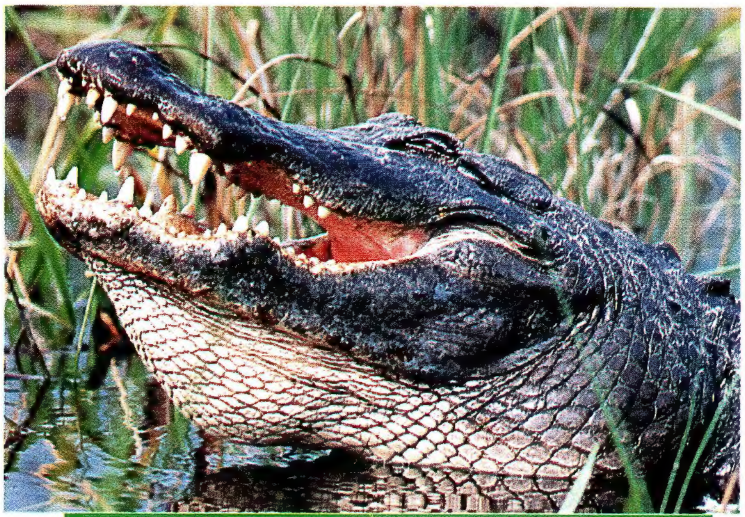
Crocodiles have ankle joints that let them walk with their legs sticking out at the sides of their bodies. They can also trot along with their legs almost straight beneath them. With their eyes and nose sticking above the water, crocodiles look like old logs as they lie in wait for prey. A special flap separates crocodiles' breathing and eating tubes, so these animals can open their mouths to bite victims under water.



***Protosuchus* was one of the earliest crocodiles. This long-legged animals was also one of the smallest. It was named by the famous fossil hunter Barnum Brown.**

FIRST CROCS

Protosuchus (pro-toh-soo-kuss), 'first crocodile', lived about 200 million years ago. Looking at the picture of *Protosuchus* (above), you might not think that it looks much like a crocodile. At about 1m long, it lived on dry land and had a wide head, a light body and long legs. Like a crocodile, it had sharp teeth and an armour-plated back. *Orthosuchus* (or-tho-soo-kuss) lived at about the same time as *Protosuchus*. With a short snout, it looked more like the crocodiles we know today. *Orthosuchus* had shorter legs than *Protosuchus,* with long fingers and toes.



Living alligators (above), caimans (left) and crocodiles (below) are still masters of their environments. Today, their only enemies are humans.

What is? THE SECRET OF CROCODILE SURVIVAL

Scientists think that crocodiles have survived for so long because they can cope with change. They eat whatever is available, alive or dead. They can move on land or in water. They are good parents, and give their babies a sure start in life. If things get too uncomfortable, they sleep in the mud or even at the bottom of a river! Crocodiles have survived because they are not fussy – they can eat anything or live more or less anywhere.

SUNBATHING

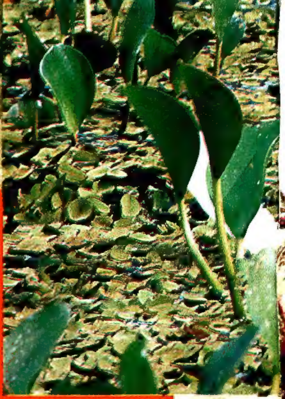
The ancient crocodiles were almost certainly cold-blooded animals, like the crocodiles of today. They would sunbathe to get warm, ready for a burst of action. If a croc was too hot, it would open its mouth and let the breeze cool its tongue and the lining inside its mouth. Being cold-blooded meant the crocs used little energy and they could survive for several weeks on one big meal.

LIVING WITH IGUANODON

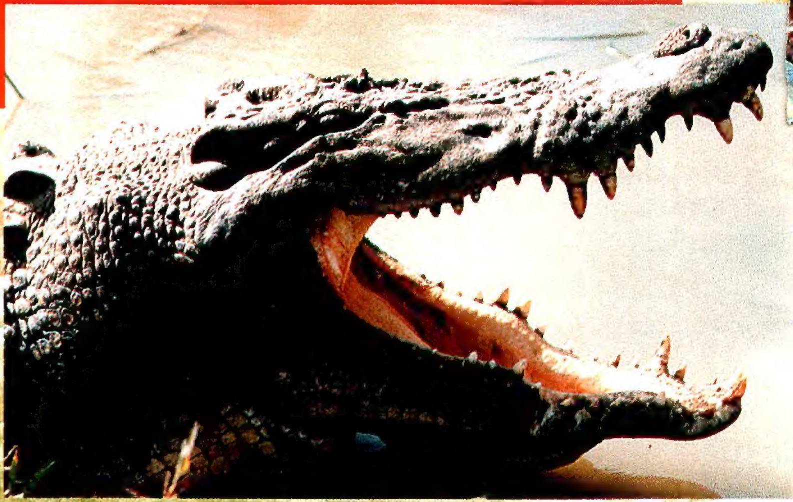
The fossils of two crocodiles were found down the mine at Bernissart, Belgium, where 39 *Iguanodon* were discovered. One was called *Goniopholis* (gon-ee-oh-fo-lis). It was 3m long and had 23 pairs of teeth. The other, *Bernissartia* (ber-ni-sar-tia), was only 1m long and is named after the coal-mining village. There were plenty of other fossils found down the mine, too, including reptiles, fish and plants.

Is it true that crocs can't chew?

A crocodile has no cutting or chewing teeth. Its cone-shaped teeth are designed simply for grabbing. So if it catches an animal that is too big to swallow whole, it wedges the animal under the water, against a log or stone. Then it takes hold of the flesh, spins round and breaks off the flesh. Sometimes the croc leaves the body to rot, then tears off bite-sized chunks.

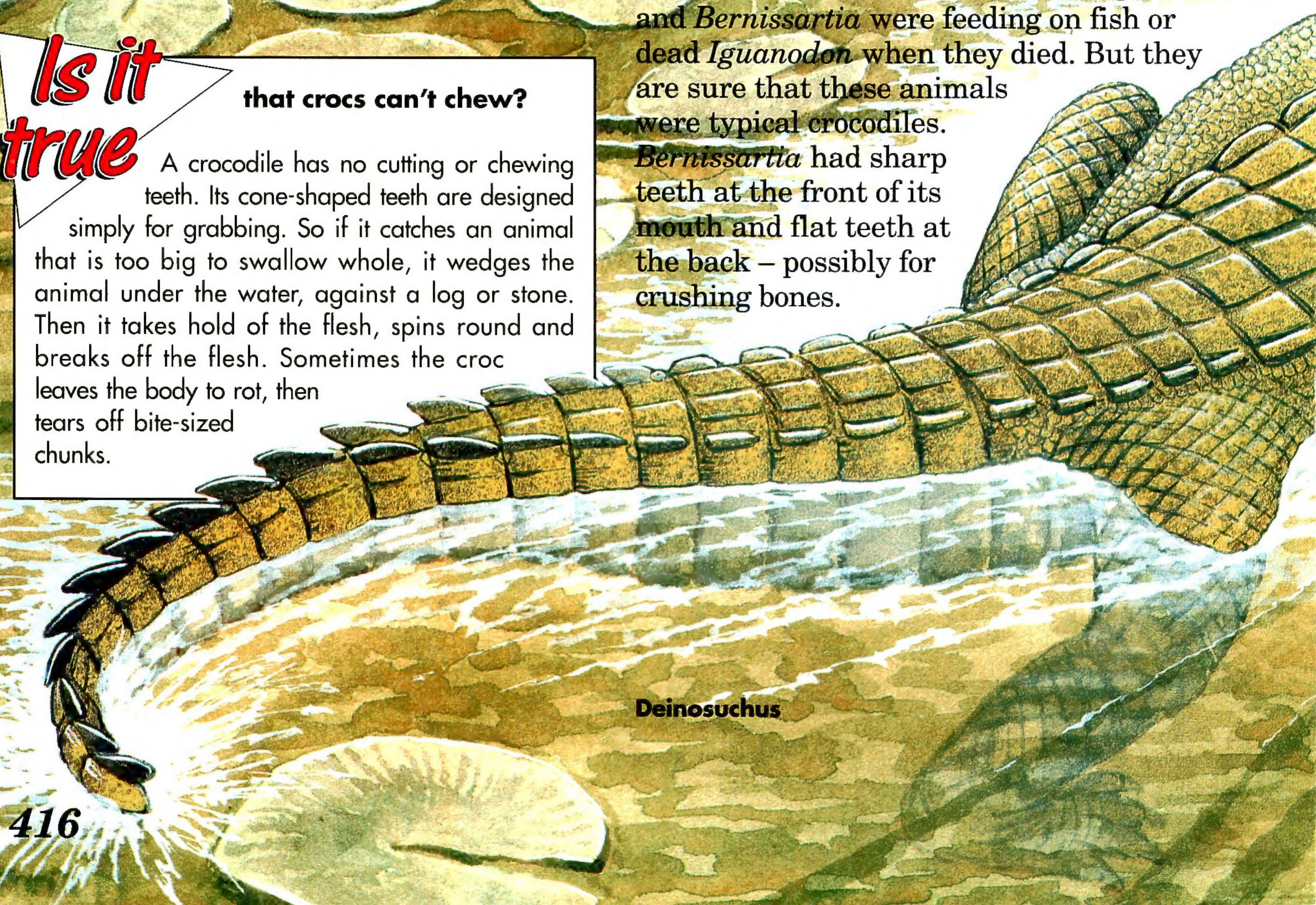


This crocodile (below) is not laughing, it is cooling down. Breezes waft across the inside of its mouth and cool the blood that is just under the skin's surface. Ancient crocodiles probably gaped like this as well.



TYPICAL!

Experts are not sure whether *Goniopholis* and *Bernissartia* were feeding on fish or dead *Iguanodon* when they died. But they are sure that these animals were typical crocodiles. *Bernissartia* had sharp teeth at the front of its mouth and flat teeth at the back – possibly for crushing bones.



Deinosuchus

A modern caiman (left) swims with just its eyes above the water.

Deinosuchus* leaps out of the river and gives *Kritosaurus* the shock of its life as it comes to drink! The crocodile's skull was 1.8m long, so its body may have been 14m long – that's as long as *T rex!

This fierce-looking Nile crocodile (right) guards her eggs.

TERRIBLE GIANT

During the Cretaceous, crocs were large and successful. *Deinosuchus* (die-no-soo-kus), 'terrible crocodile', was a 14m-long giant – four times the size of today's crocodiles. It hid in the water and grabbed dinosaurs and other creatures that came to drink. Not all the ancient crocs were the size of *Deinosuchus.* Some were tiny lizard-like crocodiles called atoposaurids, which lived in the Late Jurassic and Early Cretaceous. One of the biggest of these, *Alligatorium* (al-ig-a-tor-ee-um), was only 40cm long.

DINOSAUR CLUES

Despite being fearsome hunters, today's crocodilians make excellent parents. The mothers lay eggs in nests made of sand or rotting compost, and carefully look after their babies until they squeak and begin to hatch. Then she carries them to a nursery pool, where she guards them until they can feed themselves.

Crocodiles and dinosaurs are close relatives. By watching crocodiles today – as they keep their bodies warm, catch and eat their food, and carefully look after their babies – we can get an idea of how dinosaurs may have lived in the past.

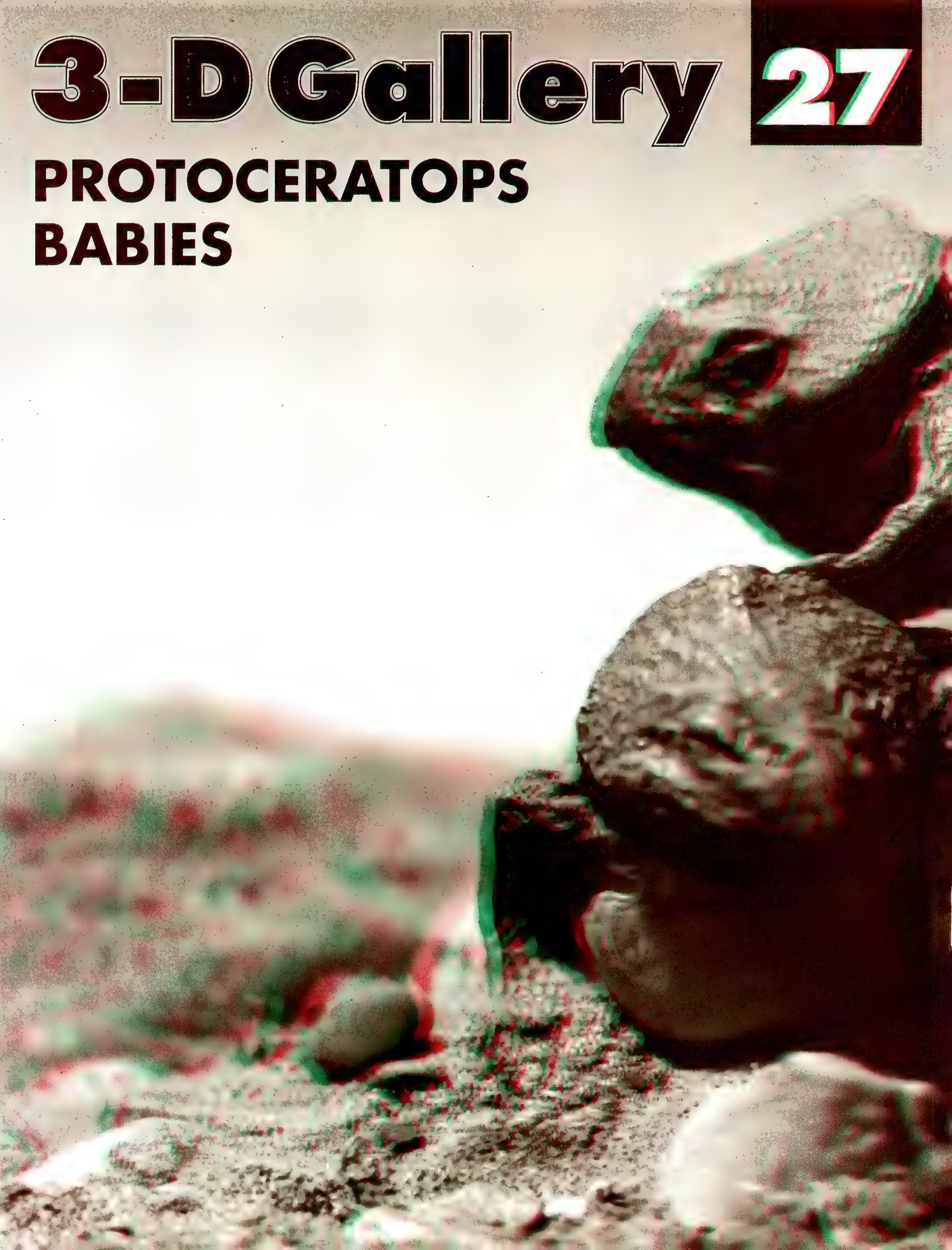
GIANTS OF THE PAST

CENTROSAURUS

A herd of *Centrosaurus* tries to dash across a wide river. Perhaps a large predator has made this group scatter in all directions. As they try to run, the water slows them down. Their fear makes them careless in their escape and they move into fast-flowing water. The weaker members of the herd drown. Eighty million years later, these *Centrosaurus* resurface as fossils in the rocks of Alberta, Canada.

3-D Gallery 27

PROTOCERATOPS BABIES



- Two newly born dinosaurs with bony frills
- Lived about 80 million years ago in China and Mongolia
- Measured about 30cm
- Ate plants

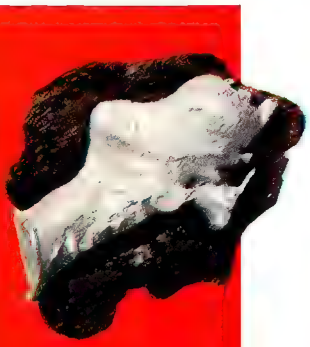
Brains

Scientists know a lot about dinosaurs, but are they smart enough to know how clever dinosaurs were?

Dinosaurs are often seen as rather dim, slow creatures but scientific detective work has changed this old idea.

BRAIN WAVES

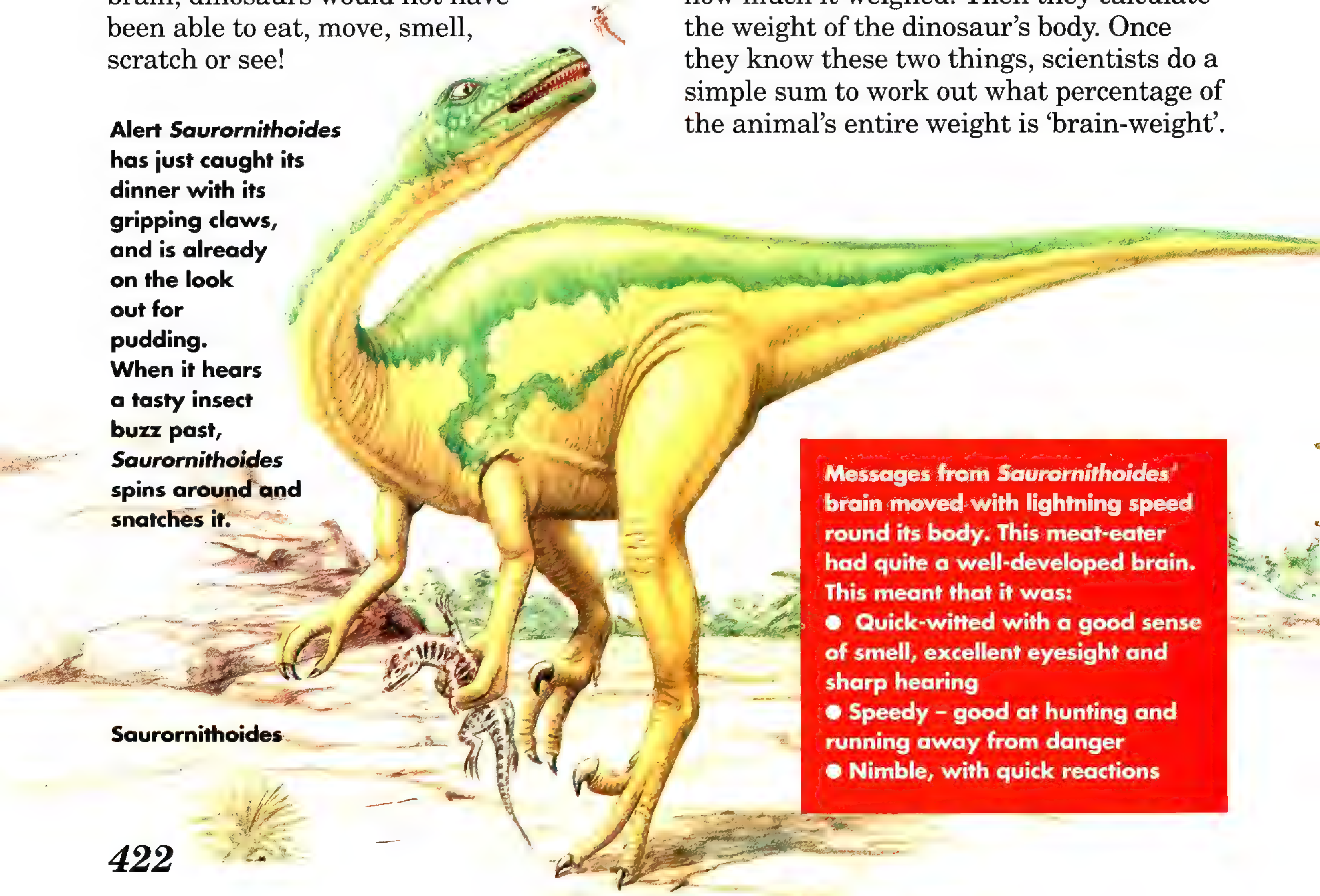
The brain is the control centre of any animal. It sends orders along pathways (nerves). Without these messages from the brain, dinosaurs would not have been able to eat, move, smell, scratch or see!



Scientists make models of dinosaurs' brains so that they can study them. They fill the space in the centre of a dinosaur skull with a liquid plastic, which hardens into a solid mould in the shape of the brain. This mould (right) shows the shape of *Iguanodon's* brain.

BRAIN POWER

It is likely that some dinosaurs were cleverer than others. To find out how bright a dinosaur was, experts need to know how big its brain was in comparison with its body. Experts look at the model of a dinosaur's brain (above), and work out how much it weighed. Then they calculate the weight of the dinosaur's body. Once they know these two things, scientists do a simple sum to work out what percentage of the animal's entire weight is 'brain-weight'.

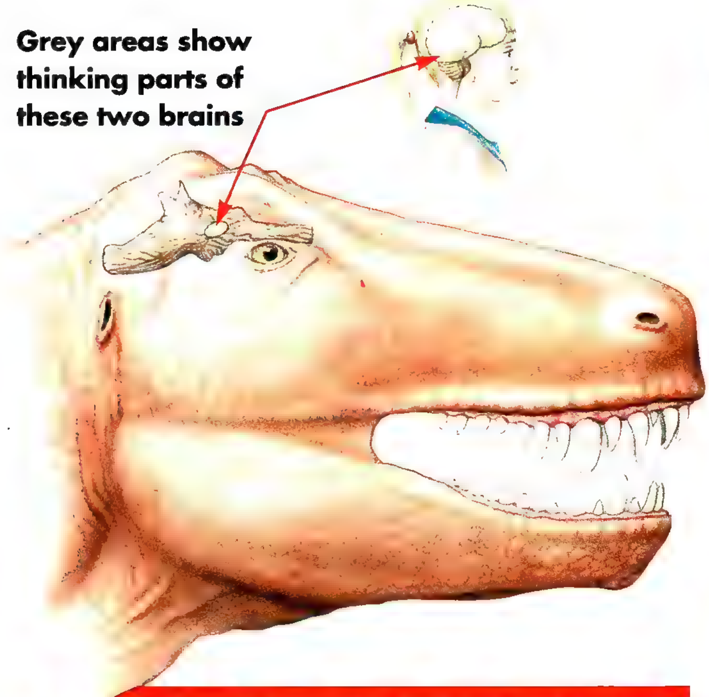


Alert *Saurornithoides* has just caught its dinner with its gripping claws, and is already on the look out for pudding. When it hears a tasty insect buzz past, *Saurornithoides* spins around and snatches it.

Saurornithoides

Messages from *Saurornithoides'* brain moved with lightning speed round its body. This meat-eater had quite a well-developed brain. This meant that it was:

- **Quick-witted with a good sense of smell, excellent eyesight and sharp hearing**
- **Speedy – good at hunting and running away from danger**
- **Nimble, with quick reactions**


Grey areas show thinking parts of these two brains

T rex **(above) had a big head, but the part of its brain that did the thinking was tiny (grey area) when compared with the thinking area of a 10-year-old's brain (top).**

TOP OF THE CLASS

A dinosaur with a relatively heavy brain, compared with its body weight, was probably brighter than a dinosaur with a relatively light brain.

DINOSAUR MASTERMIND

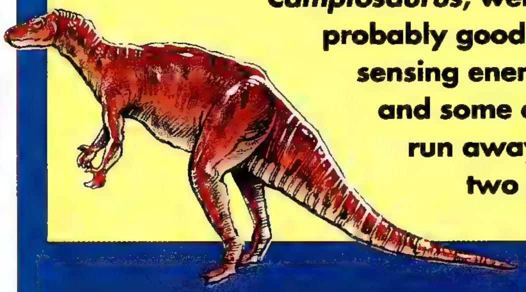
Small meat-eaters, such as *Saurornithoides* (left), had better brains than many other dinosaurs. This meant that they were faster and smarter than slow, lumbering sauropods, with relatively small brains.

SMARTER THAN US?

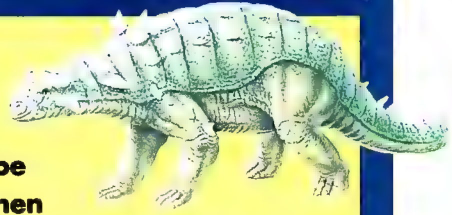
Among the last dinosaurs to walk the Earth were the clever, turkey-sized predators. Imagine if dinosaurs had not died out. Their brains may have continued to improve and evolve over the millions of years before humans arrived. With such a huge headstart on us, dinosaurs might have become cleverer than humans.

Take a look at these four dinosaurs and find out how clever they all were.

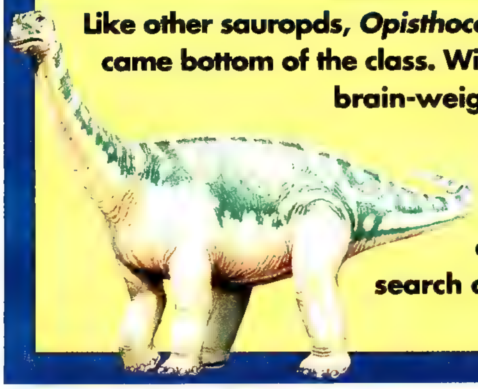
Top of the class were small meat-eaters such as *Troodon*. They were fast, had sharp senses and were good at grabbing small animals.



Big plant-eating dinosaurs, such as *Camptosaurus*, were probably good at sensing enemies and some could run away on two legs.



Armour-plated dinosaurs, like *Ankylosaurus*, did not need to be quick-witted. When threatened, they simply crouched down and relied on their armour for protection.



Like other sauropds, *Opisthocoelicaudia*, came bottom of the class. With a low brain-weight, it spent its life just moving around in search of food.

Fight to the death

In 1971, experts discovered one of the most amazing fossil finds yet – two dinosaurs locked in a weird embrace.

What were the dinosaurs doing and why did they die together? Follow the clues and see if you can solve a dinosaur mystery.

UNCOVERING A CLUE

The palaeontologist (right) is carefully clearing dust away from the bones of two dinosaurs. He is uncovering an ancient mystery. See if you can work it out.

IT'S A FACT

RARE FIND

Only two fossils of dinosaurs fighting each other have been found. The fossils of dinosaurs that died alone tell us a lot about the animal, for example where it lived and what it looked like. But a fossil of two dinosaurs fighting each other provides important clues about how they attacked an enemy and defended themselves.

CLUE 1

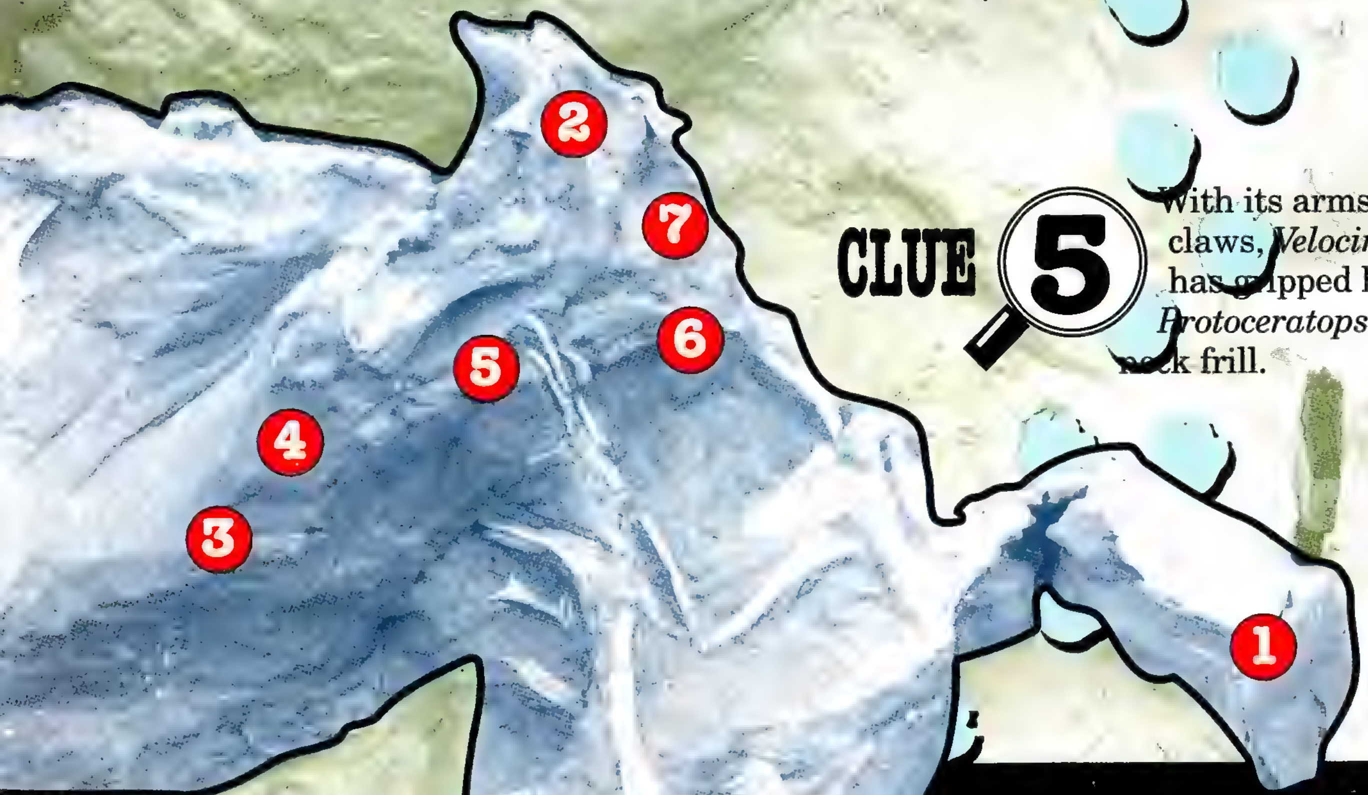
The long, flat-nosed head suggests that this was meat-eating *Velociraptor*.

CLUE 2

This triangular-shaped head might have belonged to a plant-eating *Protoceratops*. This dinosaur had a bony, shield-like neck frill.

CLUE 3

Velociraptor's hooked hind toe claw has plunged into the stomach of *Protoceratops*.



CLUE 4

Velociraptor's other hind toe has grabbed at the throat of *Protoceratops.*

CLUE 5

With its arms and claws, *Velociraptor* has gripped hold of *Protoceratops'* neck frill.

CLUE 6

Protoceratops has caught hold of *Velociraptor's* arm in its sharp beak.

CLUE 7

It looks as if *Protoceratops* has used its armoured head to smash into *Velociraptor's* chest.

GOT IT!

Did both *Velociraptor* and *Protoceratops* die during a fierce struggle? Yes, they were fighting each other. They were so badly wounded that they both died during the battle.

FOSSIL PROOF

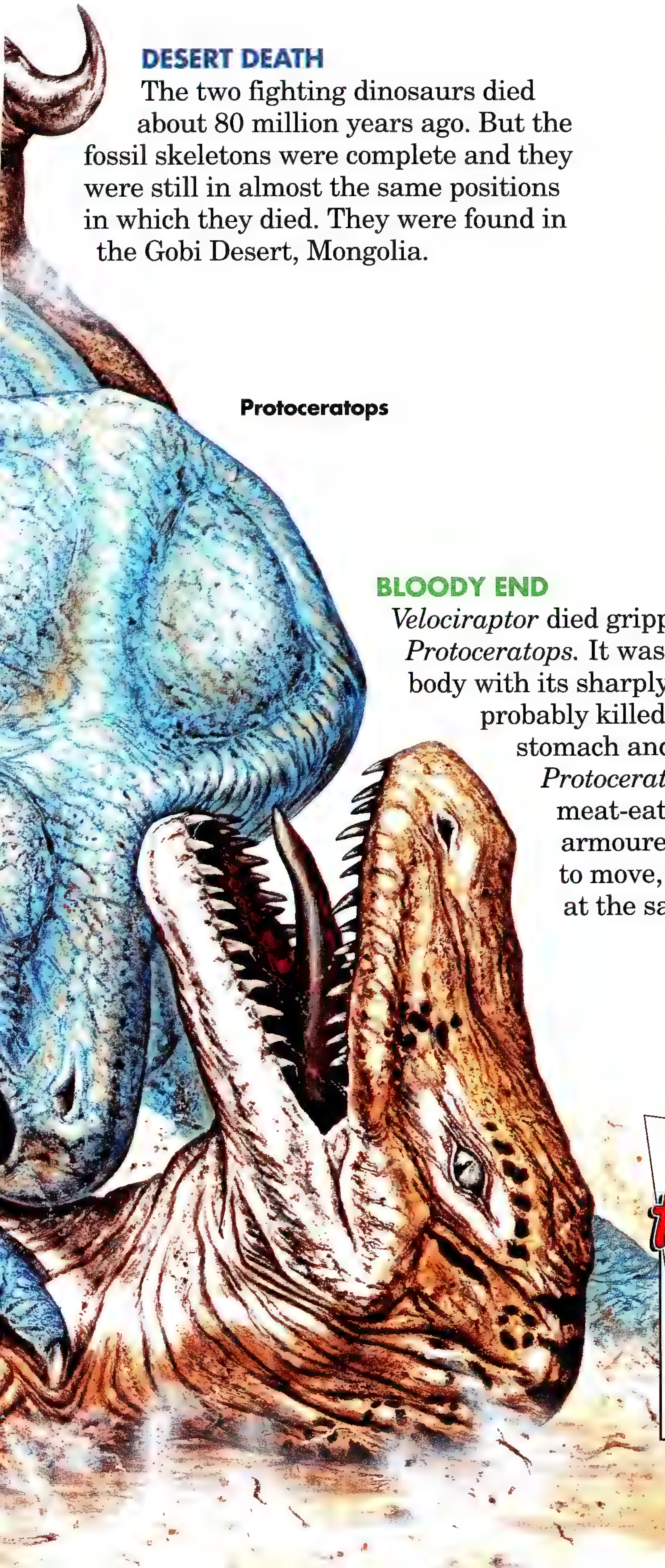
Many dinosaurs must have suffered violent deaths. The fossilized battle between *Protoceratops* and *Velociraptor* proves that the meat-eaters didn't always win their fights with plant-eaters.

SURPRISE RESULT

Both dinosaurs were about the same size – nearly 2m long. *Velociraptor* was a fierce meat-eater. It had a huge, hooked claw on each of its hind feet to rip the flesh of its prey. *Protoceratops* was a peaceful plant-eater, but it did have a sharp beak and a bone-crushing bite. *Velociraptor* should have won the fight, but *Protoceratops* seems to have delivered the death blow by using its huge head as a powerful battering ram.

DESERT DEATH

The two fighting dinosaurs died about 80 million years ago. But the fossil skeletons were complete and they were still in almost the same positions in which they died. They were found in the Gobi Desert, Mongolia.



CAUSE OF DEATH

Experts are puzzled by the ferocious fight that peaceful *Protoceratops* put up. Some think the dinosaur fought back extra hard because it was defending its nest. Others believe the two dinosaurs might have been buried alive by a sudden, violent sandstorm during their battle.

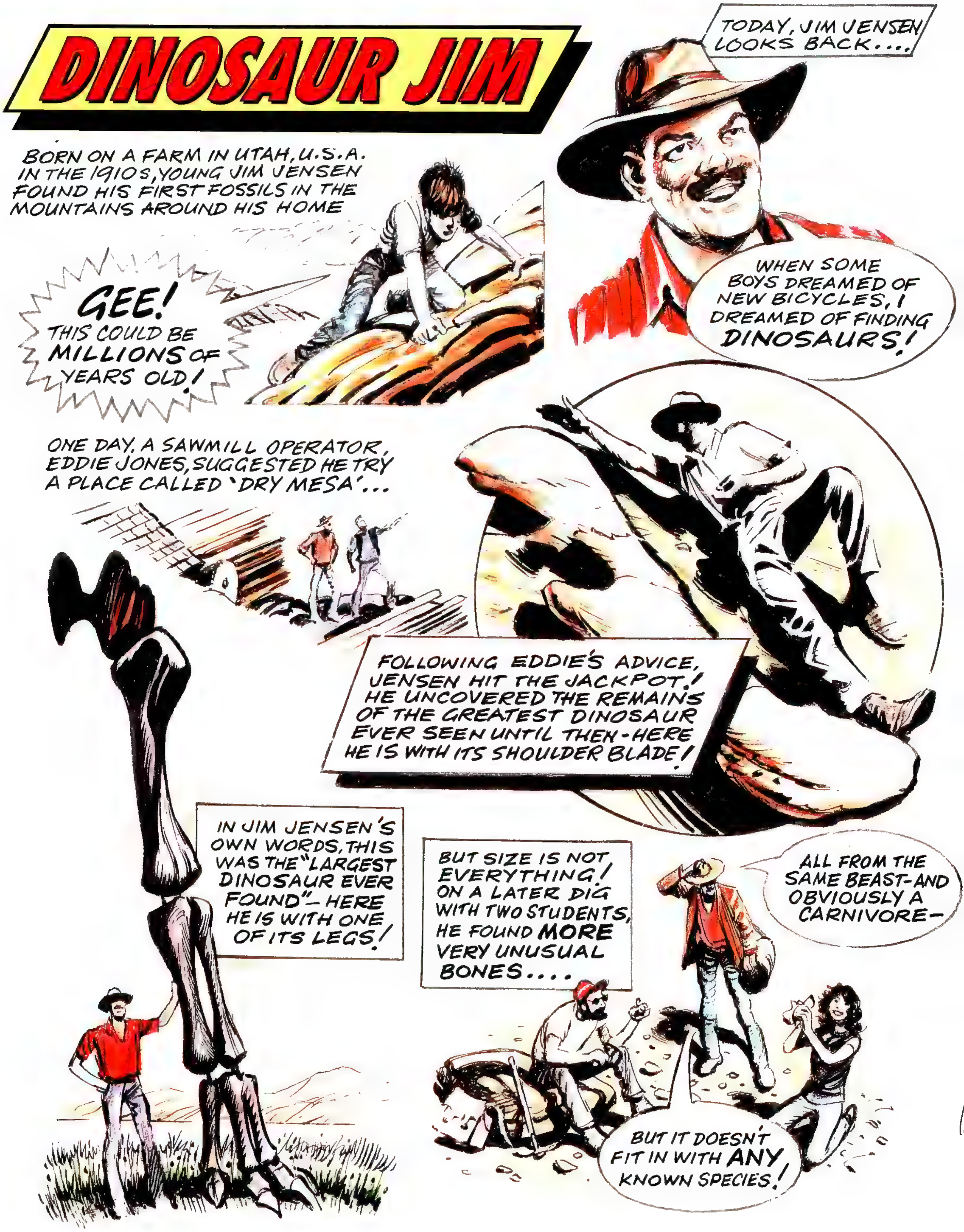
BLOODY END

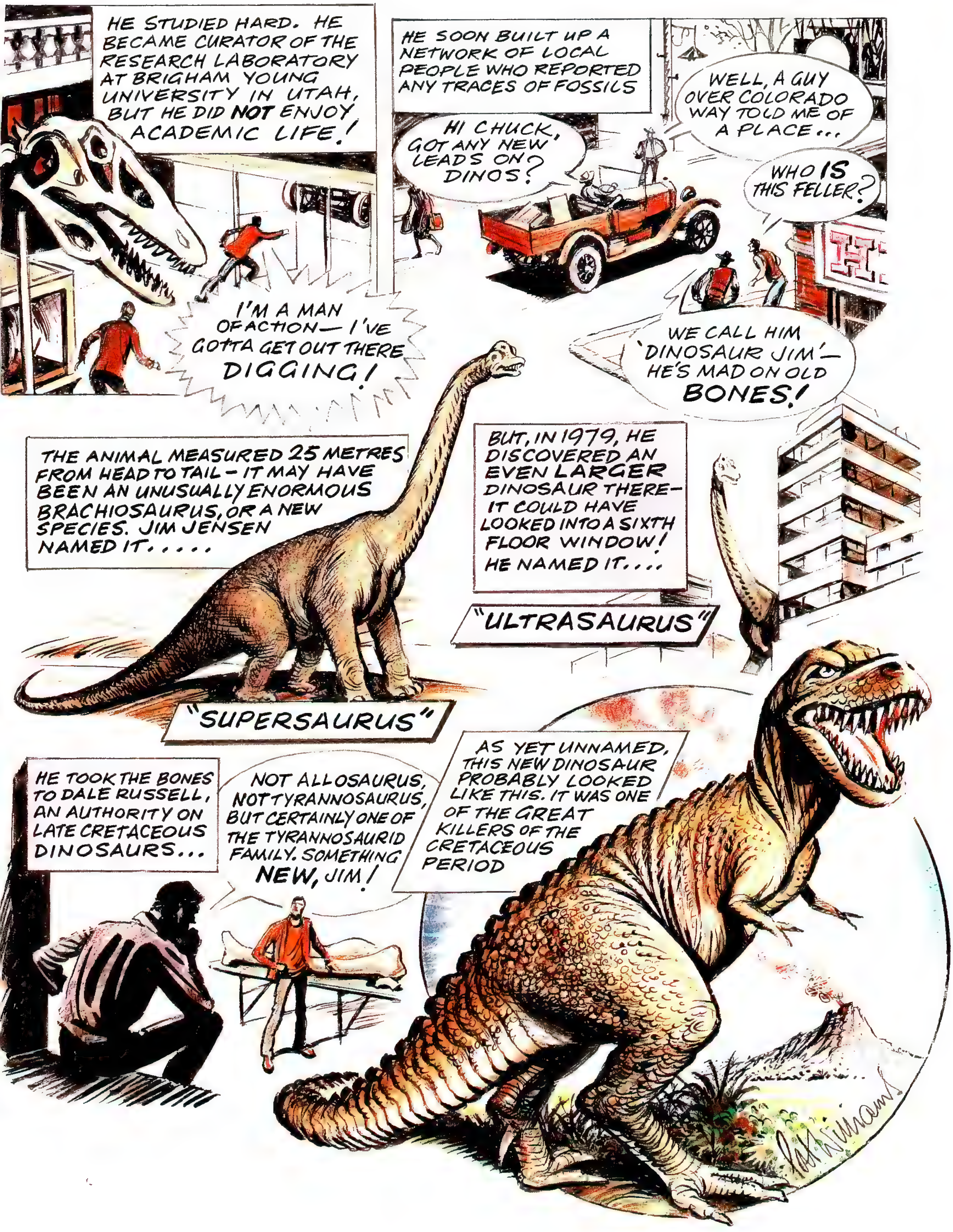
Velociraptor died gripping the head shield of *Protoceratops*. It was kicking out at the plant-eater's body with its sharply clawed hind feet. *Velociraptor* probably killed *Protoceratops* by slashing its stomach and ripping out its insides. But *Protoceratops* had managed to smash the meat-eater's chest with its powerful armoured head. Locked together, too weak to move, the two dinosaurs must have died at the same time.

Is it true that *Protoceratops* killed an egg-eating *Oviraptor*?

Oviraptor was found lying on top of a nest filled with eggs belonging to *Protoceratops*. Some experts think that the 'egg thief' was caught in the act of raiding the plant-eater's nest, and killed by an angry *Protoceratops* parent.

DINOSAUR JIM


BORN ON A FARM IN UTAH, U.S.A. IN THE 1910S, YOUNG JIM JENSEN FOUND HIS FIRST FOSSILS IN THE MOUNTAINS AROUND HIS HOME
GEE! THIS COULD BE MILLIONS OF YEARS OLD!
TODAY, JIM JENSEN LOOKS BACK....
WHEN SOME BOYS DREAMED OF NEW BICYCLES, I DREAMED OF FINDING DINOSAURS!
ONE DAY, A SAWMILL OPERATOR, EDDIE JONES, SUGGESTED HE TRY A PLACE CALLED 'DRY MESA'...
FOLLOWING EDDIE'S ADVICE, JENSEN HIT THE JACKPOT! HE UNCOVERED THE REMAINS OF THE GREATEST DINOSAUR EVER SEEN UNTIL THEN - HERE HE IS WITH ITS SHOULDER BLADE!
IN JIM JENSEN'S OWN WORDS, THIS WAS THE "LARGEST DINOSAUR EVER FOUND" - HERE HE IS WITH ONE OF ITS LEGS!
BUT SIZE IS NOT EVERYTHING! ON A LATER DIG WITH TWO STUDENTS, HE FOUND MORE VERY UNUSUAL BONES....
ALL FROM THE SAME BEAST - AND OBVIOUSLY A CARNIVORE -
BUT IT DOESN'T FIT IN WITH ANY KNOWN SPECIES!


HE STUDIED HARD. HE BECAME CURATOR OF THE RESEARCH LABORATORY AT BRIGHAM YOUNG UNIVERSITY IN UTAH, BUT HE DID NOT ENJOY ACADEMIC LIFE!
I'M A MAN OF ACTION — I'VE GOTTA GET OUT THERE DIGGING!
HE SOON BUILT UP A NETWORK OF LOCAL PEOPLE WHO REPORTED ANY TRACES OF FOSSILS
HI CHUCK, GOT ANY NEW LEADS ON DINOS?
WELL, A GUY OVER COLORADO WAY TOLD ME OF A PLACE...
WHO IS THIS FELLER?
WE CALL HIM 'DINOSAUR JIM' — HE'S MAD ON OLD BONES!
THE ANIMAL MEASURED 25 METRES FROM HEAD TO TAIL - IT MAY HAVE BEEN AN UNUSUALLY ENORMOUS BRACHIOSAURUS, OR A NEW SPECIES. JIM JENSEN NAMED IT....
"SUPERSAURUS"
BUT, IN 1979, HE DISCOVERED AN EVEN LARGER DINOSAUR THERE - IT COULD HAVE LOOKED INTO A SIXTH FLOOR WINDOW! HE NAMED IT...
"ULTRASAURUS"
HE TOOK THE BONES TO DALE RUSSELL, AN AUTHORITY ON LATE CRETACEOUS DINOSAURS...
NOT ALLOSAURUS, NOT TYRANNOSAURUS, BUT CERTAINLY ONE OF THE TYRANNOSAURID FAMILY. SOMETHING NEW, JIM!
AS YET UNNAMED, THIS NEW DINOSAUR PROBABLY LOOKED LIKE THIS. IT WAS ONE OF THE GREAT KILLERS OF THE CRETACEOUS PERIOD

Improve and test your knowledge with...

DINO Fact File

Follow the footprints to complete the quiz and get to the bottom of the question!

1 What did *Rhabdodon* use its 10 fingers for?

a) catching small insects
b) pulling down branches to eat
c) fighting other dinosaurs when attacked

2 What does *Tarbosaurus* mean?

a) Tarbuck's dinosaur
b) alarming dinosaur
c) turbo dinosaur

Bite marks

Scientists can tell what a mosasaur had for its dinner 120 million years ago. They have found its teeth marks on the fossils of giant squid and a kind of shellfish called an ammonite.

6 *Supersaurus* and *Ultrasaurus* were:

a) tiny mammals
b) massive dinosaurs
c) flying reptiles

7 When did *Centrosaurus* put itself in danger?

a) when it left the herd
b) when it walked in the woods
c) when it stayed in a group

8 Where was *Gasosaurus* discovered?

a) in China
b) in India
c) in Canada

Don't be fooled

Tyrannosaurs had relatively small arms compared with the rest of their body. But don't be fooled – some scientists believe that certain tyrannosaurs could still lift up to 250kg with their arms. That's about the same weight as eight average-sized 10 year olds!

9 Which dinosaurs were the most intelligent?

a) ankylosaurs
b) small meat-eaters
c) sauropods

Keep it in the family

Tom and Pat Rich named a newly discovered dinosaur after their daughter, Leaellyn. They called the two-legged plant-eater Leaellynasaura. The couple discovered Leaellynasaura at Dinosaur Cove in Australia.

10 How big was *Deinosuchus?*

a) four times bigger than a modern crocodile
b) the same size as a modern crocodile
c) the same size as *Kritosaurus*

3 **Why did *Gallimimus* scrape the ground with its claws?**

a) to sharpen them
b) to stop its claws growing too long
c) to look for food

4 ***Rhabdodon* belongs to a group nicknamed the:**

a) ostrich dinosaurs
b) gazelle dinosaurs
c) pigeon dinosaurs

5 **What was remarkable about *Tarbosaurus'* arms?**

a) they were very short
b) they were very long
c) they had no fingers

Lost teeth

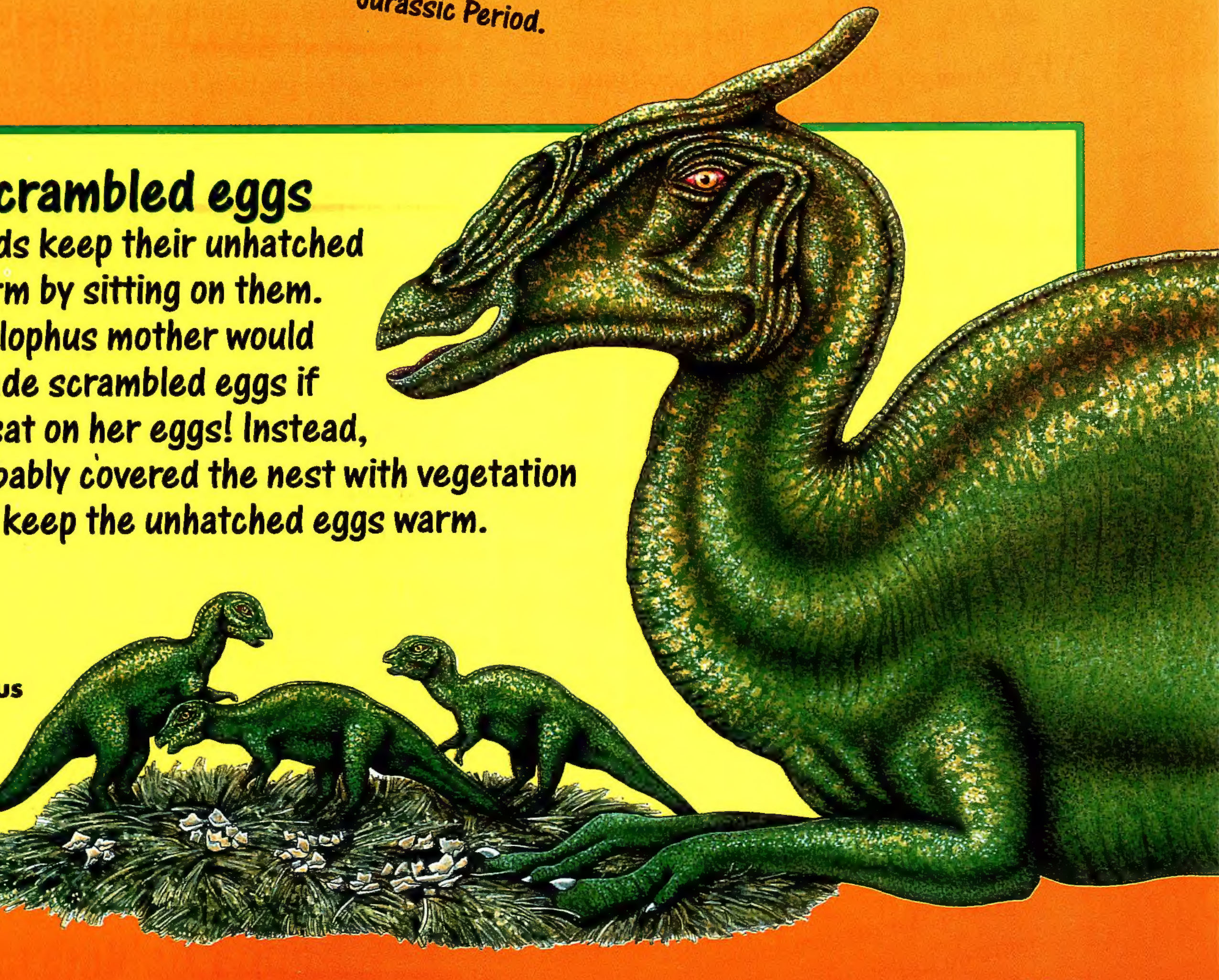
Tyrannosaurus rex was always losing teeth when it fed on other dinosaurs. Unlike a human adult's tooth, which does not grow back, a brand new one would replace T rex's old one. A number of animals today (especially reptiles) constantly grow replacement teeth. They do not have to worry about false teeth either!

Birdsong

Can you imagine a world without birdsong? Early dinosaurs, such as Plateosaurus, would have been very surprised to hear the toot of an owl, let alone the song of a thrush, because birds did not appear on Earth until the Jurassic Period.

Scrambled eggs

Most birds keep their unhatched eggs warm by sitting on them. A Saurolophus mother would have made scrambled eggs if she had sat on her eggs! Instead, she probably covered the nest with vegetation to keep the unhatched eggs warm.

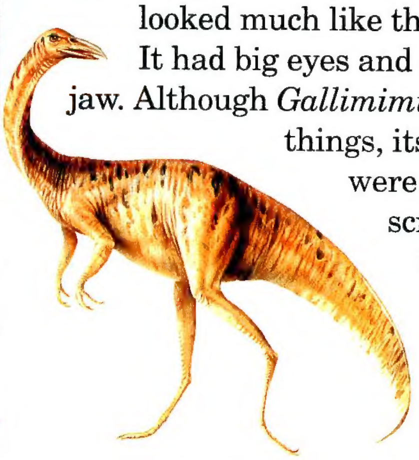


Saurolophus family

Answers to the questions on inside back cover

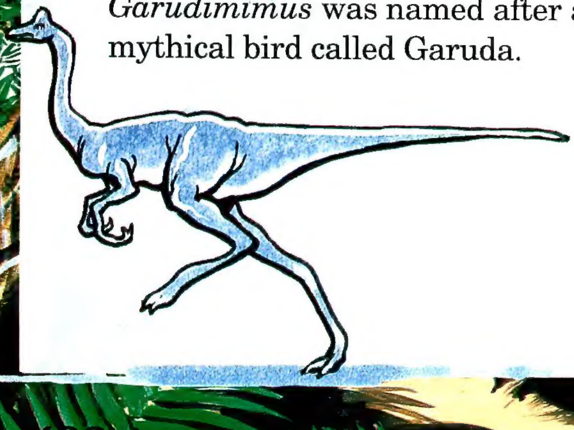
GALLIMIMUS **70 MYA**

Gallimimus (gal-ih-mime-us) lived in Mongolia during the Late Cretaceous Period. Its varied diet included insects, lizards and berries. *Gallimimus* was as long as an elephant and walked on two legs. With its long, slim legs and flexible neck, *Gallimimus* looked much like the ostrich of today. It had big eyes and a long, toothless jaw. Although *Gallimimus* could not grasp things, its clawed fingers were useful for scraping the ground to forage for food. *Gallimimus'* name means 'hen mimic'.



GARUDIMIMUS **80 MYA**

An ostrich-like dinosaur with a strange, bony ridge just above its eyes and a notch on the tip of its beak, *Garudimimus* (ga-rood-ih-mime-us) lived in Mongolia in the Late Cretaceous Period. Scientists have only found the remains of *Garudimimus'* skull, but they have put this dinosaur in its own special group. Because it looked like a bird, *Garudimimus* was named after a mythical bird called Garuda.



GASOSAURUS **170 MYA**

Gasosaurus (gas-oh-saw-rus) was given its name, 'gas lizard', because a petroleum company helped fund the expedition that found it. *Gasosaurus* lived in Sichuan Province, China, in the Middle Jurassic. This dinosaur used its razor-sharp, curved fangs to tear the flesh of its prey. It was 4m long and taller than a football goal-post.

GENYODECTES **80 MYA**

When *Genyodectes* (gen-yoh-deck-tees) was found in Chubut, southern Argentina, only the tip of its snout and long, slim teeth remained. Scientists believe that *Genyodectes* was a large two-legged dinosaur. The name of this flesh-eater means 'biting jaw'.

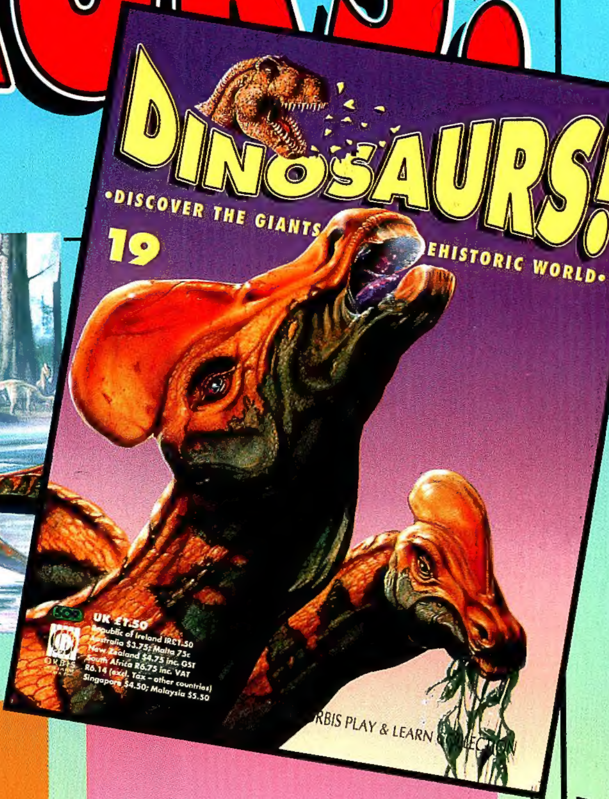
GERANOSAURUS **200 MYA**

Small plant-eating *Geranosaurus* (jer-an-oh-saw-rus) – from southern Africa – was knee height to an adult human. Its name means 'crane reptile'. Only a few bones, including part of its jaw, were found. It had sharp teeth at the front of its jaw to nip off shoots and a pair of fangs behind. A set of cheek teeth helped *Geranosaurus* grind its food.

MYA = MILLION YEARS AGO

COMING IN PART 19 OF

DINOSAURS!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•DISCOVER THE GIANTS ... EHISTORIC WORLD•
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UK £1.50
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Australia $3.75; Malta 75c
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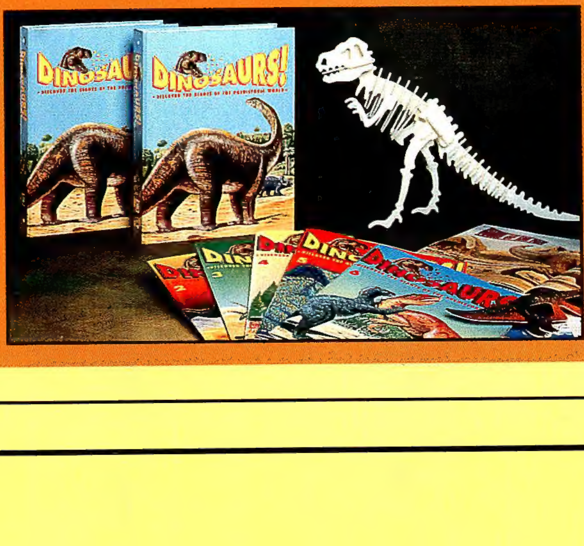

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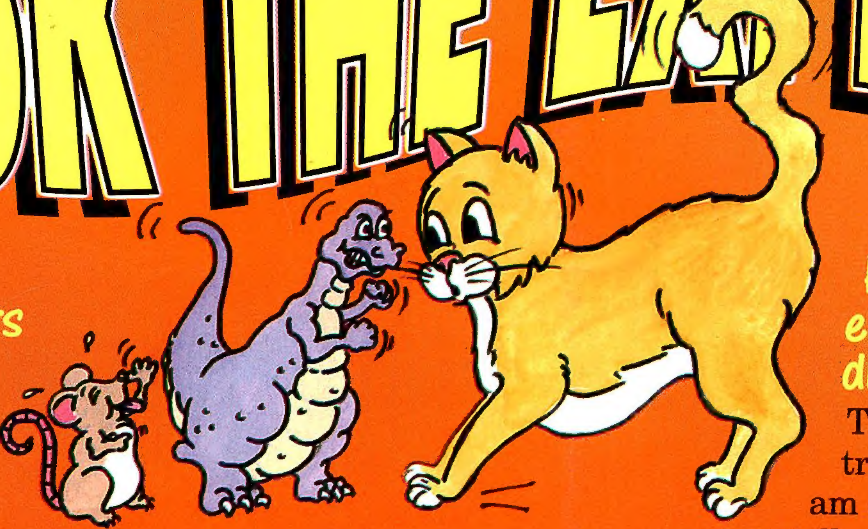
ANSWERS TO DINO FACT FILE QUESTIONS: 1.b 2.b 3.c 4.b 5.a 6.b 7.a 8.a 9.b 10.a

Dr. David Norman of Cambridge University answers your dinosaur questions

ASK THE EXPERT



Can dinosaurs be small?

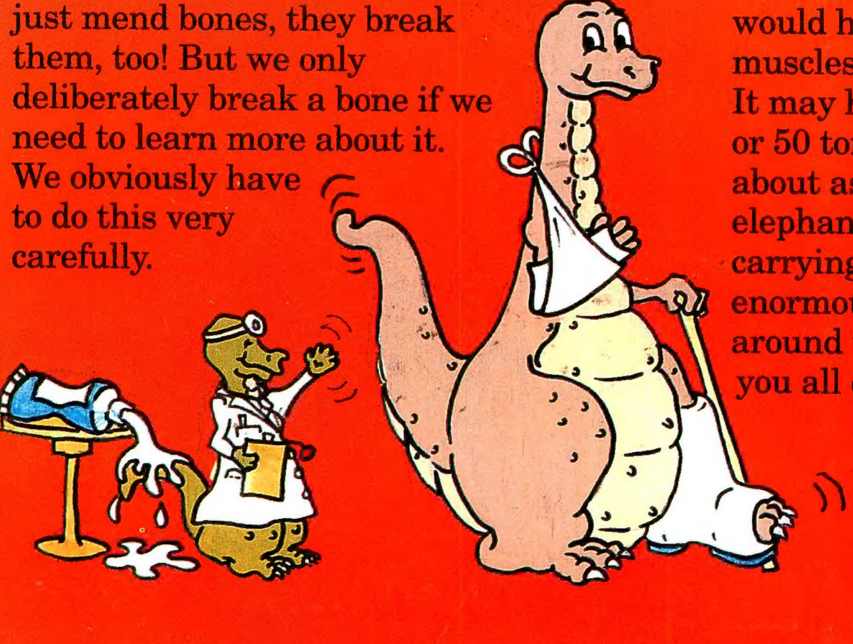
Yes, they can! I have held a complete dinosaur in the palm of my hand. It was a tiny South American dinosaur named *Mussaurus* (which means 'mouse reptile') – but it was probably a baby dinosaur. Its skull was the size of a small matchbox.

How many enemies did dinosaurs have?

This is a very tricky question. I am afraid I cannot tell you the answer because I do not know. All dinosaurs had enemies – some more than others. Little plant-eaters had lots of enemies, while some of the big meat-eaters had hardly any – they were much too fierce!

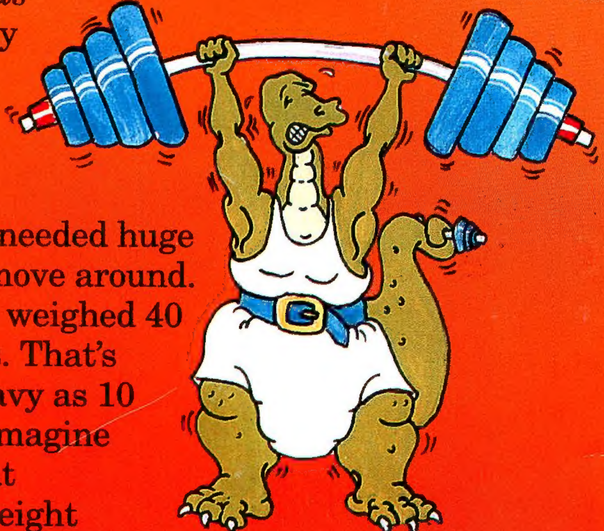
If a very important bone from a dinosaur's skeleton broke, how would an expert fix it?

If an important bone broke, we would simply glue it together again! There is no knack to it, but we do have to use a special sort of glue. Palaeontologists don't just mend bones, they break them, too! But we only deliberately break a bone if we need to learn more about it. We obviously have to do this very carefully.



Which was the strongest dinosaur?

Seismosaurus was probably the strongest dinosaur because it would have needed huge muscles to move around. It may have weighed 40 or 50 tonnes. That's about as heavy as 10 elephants. Imagine carrying that enormous weight around with you all day!



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